

Mythic Algebra and Other Things

By Michael Griffin

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Introduction:

Origins

While this book reprints seven academic papers and related material, its origins are not in the dry, technical world of academic theory. It started with comic books. Before I went to school, before I learned to read, I 'read' comic books at home. Four decades later I was again reading them at home, and developed mythic algebra from them.

Mythic algebra is a hybrid system of various parts of basic mathematics, sets and algebra cobbled together to describe the symbolic processes of the mind. Originally derived from mythology and superhero comic book stories, the system has been aimed to cover all mental activity, incorporating non-mathematical processes like mental association. This led to the idea that mythic algebra is the ur-mathematics out of which true mathematics, and any other language, evolved.

This collection of academic papers is based on a radical assumption, that the mind works on symbolic processes which are the same no matter how expressed. Today's educators speak of different learning styles, which is no doubt true. Beyond this, everyone assumes that each field of thought, each subject area, involves different ways of thinking. How one does mathematics differs from how one understands the arts, stories, language, or any other mental activity. Yet we have one brain for all of this, and while scientists can identify different areas of higher brain activity depending on type of thought, all areas are said to be interconnected. There are also many different types of connection: chemical, electrical, physiological, organelle, and perhaps electromagnetic broadcast. But if all these are considered the building blocks, what structure do they make?

Notwithstanding the actual variation of brain parts and connections, when they all work together, does it make a single, unified process? Obviously it does, since we are autonomous animals that think and move on our own. While this fact is easily conceded on the level of body motion and physiology, it is rejected at the level of thought. Our personal conflicts, our ambivalent desires, are taken as signs of the competing systems in

the triune brain, the reptilian brainstem versus the mammalian midbrain versus the human frontal lobes. Yet the triune brain produces a single person, even if it is only a highly evolved radio box to receive a spirit. Leaving aside spiritual questions, how could any unity of process be recognized? How could this be described in a functional notation system?

Enter 'the new math,' that abandoned approach to teaching grade school mathematics in the 1960s. I am a product of that, for I absorbed the emphasis upon sets as a basis of understanding the world. It has colored my thinking, becoming my natural viewpoint upon anything, long before it inserted itself into my way of thinking about comic books and the first published paper here (from 2000), 'Mythic Spacetime.' I get ahead of myself, and must retreat to earlier decades, to give an unpublished example of a worldview colored by sets.

Singular They

We arrive next at Singular They, an unpublished paper on the set logic of pronouns used in the English language. As noted, this kind of thinking was a precursor to mythic algebra three decades later.

The following paper from 1981, 'Set Theory and Some English Pronouns,' was worked out after a much longer class paper on the use of singular 'they,' done for a communication course at Arizona State University in Tempe. That course paper was titled 'Linguistic Neutralism: Everybody as They,' and surveyed history and social use, briefly mentioning set theory implications.

Set Theory and Some English Pronouns

Abstract

The use of some third person pronouns corresponds with the mathematical rule for set unions. This leads to speculations about semantics and the place of mathematics among linguistic universals.

Descriptive linguists recognize a nonstandard use of a pronoun called the singular they, referring to uses of they, them, their, and theirs. An example is the sentence, 'Somebody gave their donation anonymously.' A prescriptive rule would have the sentence as, 'Somebody gave his donation anonymously.' for what is sometimes called the generic he. As for singular they, Ann Bodine (1975) traced its use through every recorded century of the English language, and showed how it filled a logical gap in the language, for a singular sex-indefinite pronoun.

Let us further pursue this logic, and state those principles of use: why do we say they when we mean either a he or a she? In our minds, we have two possibilities, of opposite sex. Only one of those possibilities will occur in reality, but that is irrelevant. The purpose is to communicate thoughts that consider both possibilities, so we use a plural pronoun. This is analogous to the mathematical formula for set union: $a \text{ or } b = a \cup b$. Singular they indicates a union of two sets to compose a new set in which a member taken out of this new set could be from either of the two sets that combined.

It is as if we had two different semantic categories. The potential category indicates the basic complete picture of all elements. In mathematics that is the portrait of the sets and their union. The actual category is the result of performing some operation on the sets. In mathematics that would be taking out one element, but in English grammar that becomes the use of the singular they. In the potential category, singular they is actually plural. The potential category is operated upon to become the actual category, and the proof that something has happened is shown by a plural pronoun becoming singular. This happens as long as the actual situation provides the context and not the hypothetical situation, in which case the pronoun would again have a plural meaning.

Pragmatics are involved in the use of singular they also. If a speaker had time to emphasize that either sex was meant, then 'he or she' may be spoken or written instead of they. However, if fast talking were going on, and the speaker didn't want to call attention to such details, singular they may be spoken without awareness, just as a natural feature of the grammar.

As for syntax, singular they can show up as any kind of noun phrase function: subject, object, or modifier. Singular they encompasses four words. These words often show up with other indefinite pronouns, such as some-, any-, no-, or every- ending in -one or -body. A further example besides the one used at the start of this paper is the sentence, 'If anybody shows up, give it to them.'

G.L. Brook (1964, 128) remarks upon the Old English adoption of the pronoun they from Scandinavia as a rare example of pronoun borrowing between languages. Jespersen (1938, 74) mentions other indefinite singular pronouns used in the history of the English language, including a contraction of them to 'em, which is still in use today. The utility of they for indefinite singular usage may have contributed to its permanent establishment in the English language.

Perhaps other terms can cross over into other languages to fulfill set theoretic needs, or a language has a built-in flexibility to allow for such combinations among potential and actual categories. It would certainly be amazing if set theory principles from mathematics were not universal linguistic concepts. That might imply that any non-western language could create a different kind of set theory, and a totally foreign mathematics, to shatter our illusions of scientific truth. What we had thought was an unending universe of mathematics would turn out to be only one of many unending universes.

References

Bodine, Ann. 'Androcentrism in prescriptive grammar: singular they, sex-indefinite he, and he or she.' *Language in Society*. 1975(4): 129-146.

Brook, G.L. *A History of the English Language*. New York: W.W. Norton, 1964.

Jespersen, Otto. *Growth and Structure of the English Language*. Garden City, NY: Doubleday, 1938.

Forty years later, I can critique this paper as still valid even if the historical progression in usage is unclear. They were first used in English for uncertain singular or plural persons, then centuries-worth of prescriptive grammarians and school teachers have tried to limit it to plural only. Regardless of the origin of singular they, its modern use in violation of taught grammar shows a kind of set function where ‘male or female’ is thought of as plural, thus one selects a single choice from plural possibilities, so the taught label from plural comes to mind to use. Descriptive grammar is then vindicated by set theory, no matter which came first in history, single or plural they, or both together.

This paper on they shows a first clue of sets and math processes turning up where they are not supposed to be, outside of mathematical topics. I did not pursue the matter further. After getting a Bachelor of Arts degree in mathematics, I got a master’s in library science and then a 13-year career in database publishing. Personal research and writing took other directions, but the new math works in mysterious ways.

Imaginary Heroes

From 1981, we must jump to 1992 when I wrote an unpublished book titled *Imaginary Heroes in the Age of Science: Archetypes in Popular Culture*. There was one good idea in it worthy of publication, which was developed into this collection’s first paper, ‘Mythic Spacetime.’ Once the framework developed in 1992, it took five years of idle contemplation before that set theory insight resulted one night. I now reproduce the few paragraphs, from the 1992 book, which were my first thoughts on and coining of the term “mythic spacetime.”

In standard myths, where does a hero commit violence? In the land of adventure, the fantastic other realm outside of normal society. This is part of the constructive social

meaning of archetypal models, which modern society tries to erase in its rational models of law and order, but which persists as part of human nature: there is a proper place for violence. In ancient times, it was on the hunt. In modern comics, it's on the hunt for criminals or super villains. The mythic land is the place where violence is the correct thing to do, and anywhere a superhero is on the job becomes a mythic land for the duration of the fight. This fits in with why most of reality seems to ignore superheroes in the comic book stories.

It also fits with the history and prehistory of real humanity. The hunting mentality can be thought of as a kind of 'mythic time' when men access the archetypes of violence. Coming back to the hearth, they would engage in entertainment to tell of their deeds, thus recalling when they were using their instinctive skills, i.e. accessing archetypes. The original boon that they brought back was the game that they killed. Of course, the women had the superior skill of producing a boon out of childbirth. Either sex has its own version of bloody violence in the mythic space-time.

The would-be censors of violence on TV probably give less thought to sports. This is the usual mode for people to access the mythic space-time, far more popular than the pop cultures I consider in this book. The socially acceptable channeling of aggression and violent urges into competitive sports is no doubt completely satisfying for the participants. For some spectators, it's not completely satisfying, and they have to start fights or riot. For other spectators, it may be the equivalent of reading a comic book, with the added experience of getting to shout from the stands. Or in the TV room.

The notion of a separate space for superheroes to slug it out nagged at me, with its resemblance to Mircea Eliade's description of making a ritual space. One night in my caregiver years, sitting on a couch by my sleeping mother, looking at a TV screen, the notion to represent the characters as set elements occurred. The consequent idea came that elements were mapping between sets. The further explication of these ideas is presented in the first three papers, all published in the *Journal of Literary Semantics*, thanks to the instant approval of its founding editor Trevor Eaton, followed by editor Michael Toolan.

First Trio: *Journal of Literary Semantics*

So here is the one that started it all, which was inspired in part by contemplating comic books. It is the only paper that mentions comic books until the Wonder Woman article 12 years later. Instead, Mythic Spacetime is the first of *my Journal of Literary Semantics* academic trilogy.

Mythic spacetime

M Griffin, 2000

Journal of Literary Semantics 29 (1), 61-74

<https://www.degruyter.com/journal/key/jlse/29/1/html>

This is the second of *my Journal of Literary Semantics* trilogy, wherein the narrative algebra is born. It was later renamed mythic algebra.

An expanded, narrative algebra for mythic spacetime

M Griffin, 2001

Journal of Literary Semantics 30 (2), 71–82

<https://www.degruyter.com/journal/key/jlse/30/2/html>

In this last of my literary semantics trilogy, the operation of association is introduced into mythic algebra. The hierarchy of sets, functions, relations, operations, and sequences is applied to language, story, and psychology. Topics covered include theme, subtext, symbols, and motifs. Published in 2003.

More features of the mythic spacetime algebra

M Griffin, 2003

Journal of Literary Semantics 32 (1), 49-72.

<https://www.degruyter.com/journal/key/jlse/32/1/html>

Comments: Follow-up

This trio of papers from the *Journal of Literary Semantics* completes the initial form of mythic algebra as a unitary system. The second trio, from *Semiotica*, will show various applications of mythic algebra. Before introducing the *Semiotica* trio, I'd like to pursue some ideas closer to the JLS trio.

Many literary topics were broached, such as the varieties of 'figures of text' in the third paper. Some of the modeled literary concepts also have social uses, like Jungian archetypes. Such variety in the same mythic algebra notation lends support to the claim that all social science constructs are somewhat arbitrary, valid as far as they go perhaps, but only going just so far. For example, the notion of the Hero as analyzed by Campbell and Jung, et al, may have more variation than the theory of archetypes reveals.

In a 2008 article under my science fiction fan name of M.L. Fringe, I presented a critique of the hero cycle. This article ignores all of the mythic algebra ideas of mythic spacetime, to focus on the aftermath, when all of the action happens back in the real world. Mythic algebra does not enter into the article, showing how limited its relevance can be.

Hero Cycle

The hero cycle article was never printed, even in scifi fandom (title is from a Cordwainer Smith story btw). It is mildly embarrassing to post it, as an edge of bitterness comes through in some spots. In 2009 a modified version including the diagram was presented at an undergraduate conference at Arizona State University in Tempe, at the invitation of English major Jenny Brundage. In 2010 it was presented at the Coppercon 30 science fiction convention in Mesa (thanks to programming director Nyki Robertson). The cycle idea and diagram also was presented in a Phoenix College class on comic book writing (taught by Hershman John), in a presentation on antivillains by myself and fellow student Sarah Price. Later it was applied to the Wonder Woman graphic novel used as a textbook in the class. That was also not published immediately but just sat in my notes.

Then I saw a panel discussion at the 2011 Phoenix Comicon with Kathleen Dunley promoting the website *The Comics Grid*. I thought they would be interested in the idea and wrote it up to fit their criteria. They eventually accepted it (2012), and it is the first entry of the later section for Comic Books.

Westercon 57 Notes: The Crime and the Glory of Joseph Campbell

by M.L. Fringe

When Joseph Campbell's PBS-TV series *The Power of Myth* debuted in 1988, I was converted to it as much as anyone else. I'd been listening to his lectures on radio for a year by then, so I knew to catch the TV show. Like so many alienated middle class middlebrows, I was filled with the evangelistic fervor that HERE was the crucial insight to bring world peace. Once we told all the religious that they really believed the same thing because religion is a metaphor, then war and hatred would end. It took Native Americans to indirectly convince me of the naivety, 16 years later.

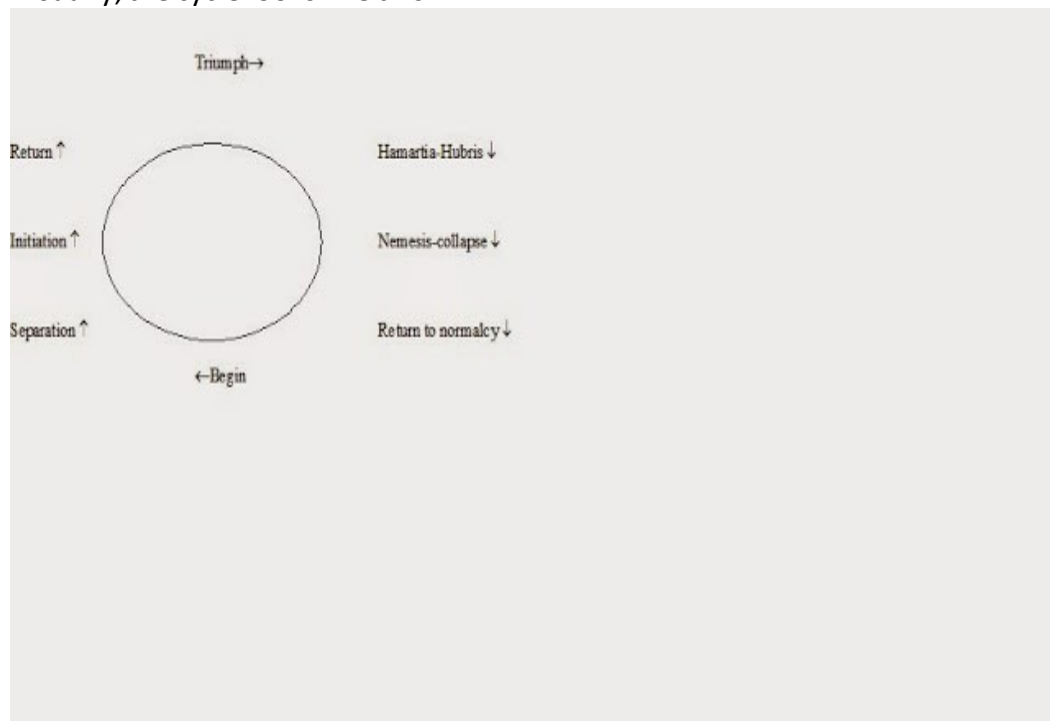
You see, the theme of the 2004 Phoenix Westercon, Konkopelli, was southwest mythology. Konkopelli, the Indian trickster, was a good choice of mascot for Westercon 57, because I could not find any Indians who wanted to participate in the convention. As one of their scholars gently explained to me, Konkopelli, Coyote, et al are not quaint myths to Indians. They are part of their living religion. If you catch a 20-year anniversary broadcast of *The Power of Myth*, you may notice that there are no Indians in the PBS-TV series, just Bill Moyers talking to Campbell.

The interviews were often on Skywalker Ranch, and praising the Star Wars movies. Another TV show has a testimonial from George Lucas on how Campbell's book *The Hero With a Thousand Faces* guided his Star Wars storytelling. Campbell was famous and influential before Moyers made him more so with PBS-TV. Many knew of his three-stage analysis of the hero cycle: separation-initiation-return to society with a benefit to save it.

What's wrong with that cycle? What's wrong is that it's only one half of the hero's cycle represented as the complete cycle. If Campbell had written of the full hero

cycle, he might never have become as rich and famous as he did. The full cycle is depressing, and has been told by schoolteachers ever since Greek was translated into English. It includes words like hamartia, hubris, and nemesis. These are the second half of the cycle, the downside when the hero gets too big for his britches and becomes a villain. Hamartia is the fatal character flaw once the hero has done his job and saved society. It leads to hubris, a conceited pride that he should lord it over society or flaunt the rule of the gods. This results in his opponent, nemesis, arising to cut him down to size. If he's lucky, he survives as a mere commoner, back where he began long ago.

Visually, the cycle looks like this:



Campbell ignored this, as if it wasn't part of the hero's story. Glossing in his book, he noted "But a deterioration may take place in the character of the representative of the father...The upholding idea of the community is lost. Force is all that binds it. The emperor becomes the tyrant ogre (Herod-Nimrod), the usurper from whom the world is now to be saved." (Part 2, chap. 3.5) One may apologize for this and claim that the bigger cycle is for the "tragic" hero, not all heroes. But literature teachers bore us with the full cycle of the hero's tale, and the price those teachers pay is humble obscurity.

We may be less inclined to want to read such complete stories, too, but they are commonly taught in school. Examples include Prometheus (who gave man fire), Oedipus

(the incestuous king), and in movies: Darth Vader (George Lucas knows). Apply such interpretations to any religion's figure of your choice. Just don't expect to convert any true believers. I've learned that much, for I remember Westercon 57.

No new mythic algebra results from this article. If I had used it, the only new uses would have been to show the breakthrough of a nemesis into the real world: $M(p,s,t)/M(p)R(s,t)$ or maybe the banishment of the hero to a mythic land of punishment, a crossover of $R(p,s,t)/R(p)M(s,t)$.

A more clearly dangling thread from the last JLS paper was the mechanism of metaphor, which I kept after until it resolved into part of the first *Semiotica* paper. The most pressing inspiration for that paper was a new area of application: the semiotic sign. I almost put a final section in the last JLS paper, on how the mythic algebra lineup could be divided into the three kinds of sign: icon, index, and symbol. The treatment would have been too short, and more research on that beckoned.

In the ensuing five years, the question of logic worked into the same paper. It had been implicated in earlier researches, but was the vaguest of dangling threads. Once semiotics was directly addressed, logic became more relevant.

The second *Semiotica* paper finally addressed the claim that mythic algebra was an ur-mathematics that could develop into mathematics proper. This was more than a dangling thread, as was the topic of association itself, covered in the last paper. While the *Semiotica* trio makes new uses of mythic algebra to tie up loose ends from the JLS trio, the second trio itself raises some new issues. These will be addressed after, in the epilog.

Second Trio: *Semiotica*

This is the first of my mythic algebra trilogy in the journal *Semiotica*. Topics covered are metaphor and irony, the laws of thought from logic, and the semiotic sign.

Mythic algebra uses : Metaphor, logic, and the semiotic sign

M Griffin, 2006

Semiotica 158 (1), 309-318

<https://www.degruyter.com/journal/key/semi/2006/158/html>

The second of my *Semiotica* trilogy, published in 2008, was given page one of the journal. It was one of their top ten most downloaded articles, or so I saw on their website. While this paper is all about numbers, it is not part of that very advanced branch of mathematics called number theory. My thoughts and notes for a sequel have so far avoided such higher math.

Looking behind the symbol: Mythic algebra, numbers, and the illusion of linear sequence

M Griffin, 2008

Semiotica 171 (1), 1-13

<https://www.degruyter.com/journal/key/semi/2008/171/html>

The last of my *Semiotica* trilogy, and this was also given page one in the journal (Volume 2009, Issue 176:1-14) (Aug 2009). Authors' copies were discontinued, so I was provided the pdf page proof instead. As an example of semiosis, or the creation of signs, the mental construction of a cargo cult is analyzed. The rest of the article analyzes the "laws of association" common to philosophy.

Semiosis, mythic algebra, and the laws of association

M Griffin, 2009

Semiotica 176, 1-14

<https://www.degruyter.com/journal/key/semi/2009/176/html>

Epilog: Future Directions in Mythic Algebra Research

This concludes the published research into mythic algebra, leaving the prospect for further work open. Either the algebra itself could be further refined, or an unending task of new applications could be done. Before new uses are made, I think the algebra itself should be critiqued. This need arises both from the vague generality of the set elements (p,q,x,y,s,t) and the divergent nature of its areas of application.

As cited in the penultimate paper on numbers, there are three distinct ways mythic algebra could be applied: in pure mathematics, into modeling the natural world, or to explain the workings of the mind. Since mythic algebra was derived from mythology, it immediately serves as a model of mental activity. It makes a structure amenable to describe any symbolic process. No small part of that success is due to the abstract vagueness of the (p,q,x,y,s,t) elements. Also, the association operation itself is so broad as to cover anything, even though the final two papers tried to limit it to a definition of linkage.

Further research into mental operations may need some more specific operations than just $+$ addition and $*$ association. Again looking at the fifth paper's chart of number types, it seems a good idea to define comparison and ordering as distinct operations on their own, so $*$ may be truly isolated as just a link. The basic criterion of any operation remains non-reducibility. No operation should be reducible to some form of $+/-$ additive process, as in a computer language. The point is that the mythic algebra system is not reductionist to nothing-but quantities adding together. So while a computer may do comparing and ordering of data based on its own $+/-$ logic, that is not the basic reason why mythic algebra does those operations. The operations themselves should be universal to any application, basic parts of any structure. Results of these operations may still be a transform \rightarrow or just an unchanged relation of equal $=$ or similar \approx . We may notate them as the colon $:$ for comparison and $>$ for order, using the math symbol for 'greater than.' The ordering is not just quantitative, nor is the comparison. And such qualitative uses of $:$ and $>$ may have no numerical measure at all, no scale of 1-to-10 to place judgments upon. These are basic operations not reducible to $+/-$ logic.

Introduction of $:$ and $>$ into the numbers chart would expand the complexity of it. Instead of trios of $+$ and $*$ symbols, with $2 \times 2 \times 2 = 8$ possibilities, there would be

$4 \times 4 \times 4 = 64$ possible basic trios, including ones not mentioned on the chart. If the chart of number types were used to examine pure mathematics, then further complexity would result. New patterns in any area of mathematics may turn up, possibly leading to new types of math, new mathematical functions, and so to new ways to model the physical world. Even the number trios chart as it presently exists could lead to these results, and caution is needed here, for there is apparently no necessary reason why the three realms of mathematics, nature, and mind should always share the same basic mythic algebra.

For example, we could argue that while the numbers chart consists of trios of mental origins, these are outside views upon quantity numbers that exist objectively only as cardinals and ordinal qualities. Objectively, there is no mind to compare or order the numbers. They simply exist as they do, and have static structures. Then there is no need to interpose : comparison or > ordering operations until we consider human usage of mathematics. Likewise when modeling nature, who compares and orders? Perhaps nature is reducible to an unknown * linkage, with + addition as a rough approximation to it, a crude surface effect. Yet the unconscious brain mechanisms of the mind do compare and order set elements, so : and > could be introduced into any of the previous mythic algebra results of literary semantics, semiotics, mythology, logic, language, etc.

Similarly, the (p,q,x,y,s,t) set elements do not have to be the same among mathematics, nature, and mind. All of the number modeling only used the x element. Physical nature would not have to distinguish people from animals, so we may have living things p versus objects x. Can we find any new structures in nature using mythic algebra, though? Do all of the features still occur? $P \rightarrow x$ could be a living thing dying and so becoming just an object. How helpful are such flexible interpretations of the mythic algebra features? A structural system is considered good the more widely applicable, but it must also be specific. Having six elements for the mind, four for nature, and only one for mathematics may not allow analyses, no matter how many subscripts are used to distinguish individuals.

Perhaps mythic algebra could become an analytic approach within each field of study, with set elements and functions tailored to that field, with the aims of discovering new * associations within that field. These new *'s may be reducible to

classical categories or not, i.e. using + operations of quantities. Chemistry may have each member of the periodic table as a set element. Physics may have each subatomic particle. Biology may have each organism. But why should scientists try such an approach if they are satisfied with the quantitative results that exist? Mythic algebra would only appeal if it could help solve outstanding problems, explain the currently unexplained, or lead to discoveries. All of these activities are beyond me, and I am the only person using mythic algebra.

Returning to my topic of mental modeling, I suggest using : comparison and > ordering for new operations. To get beyond (p,q,x,y,s,t) elements, one way would be to introduce qualities as their own set elements. In regards to the second JLS paper, we could say if a flower is red, if a person is good. From this, the amount of set elements could grow unlimited. And here we come upon the basic flaw of any structural system. Pushed far enough, it either breaks down or bogs down in complexity. Mythic algebra has avoided this so far by remaining overly simple, covering everything yet nothing precisely.

For all of this harsh analysis, mythic algebra still seems to have gotten some real results when applied to the mind. Perhaps it is too optimistic to hope that the principles of association could better describe pure mathematics and nature. At least it is a new approach, even if it harkens back to the earliest, mythic times.

This is the end of the framing material for the *Semiotica* trio. These Epilog comments do presage further research that I did. In the penultimate paragraph I said: "To get beyond (p,q,x,y,s,t) elements, one way would be to introduce qualities as their own set elements. In regards to the second JLS paper, we could say if a flower is red, if a person is good." This is exactly what was done in the 2nd and 3rd papers of the Comic Book trilogy. Antivillains and antiheroes were placed on a spectrum scale of good or bad. The Doom Patrol was compared to the Fantastic Four based on qualitative aspects of individual team members. Btw, the intended title of the book was simply *Mythic Algebra* before I added in the rest of the blog site name.

Third Trio: Comic Books

The first entry is the last published academic article, but not the most recent research. This is from the 2012 Blog and Archive of *The Comics Grid: Journal of Comics Scholarship*. A creative commons open-source online journal.

Wonder Woman: Hero Cycles and Mythic Algebra

BY MICHAEL GRIFFIN ON AUGUST 20TH, 2012 [NO COMMENTS](#)

A technique in superhero comics is to revise myths, recasting them with superheroes. In contrast to mythic heroes, comic book superheroes have limited roles to maintain the status quo by defeating super villains, typically. Nonetheless, the life stories of superheroes often match those of mythic heroes, even so far as having origins as ancient gods. Wonder Woman is a truly classical example of this, since she comes from a race of immortal Amazons.

In the graphic novel written by Greg Rucka and illustrated by J.G. Jones and W. von Grawbadger ([2002](#): 34–35), *The Hiketeia*, she encounters other elements from classical mythology.



Wonder Woman: The Hiketeia, text by Greg Rucka; art by J.G. Jones (penciller) , W. von Grawbadger (inker), D. Stewart (colorist), and T. Klein (letterer), (2002) (New York: DC Comics, 34–35)

In this example, the Furies, called by their Greek name of [Erinyes](#), have lately come to Earth and are confronted by Wonder Woman for the first time. They are here to punish Wonder Woman, who is protecting Danielle, a young vigilante. Danielle does not have a lucky ending. She ends in suicide, which satisfies the Furies and saves Wonder Woman and Batman from their wrath. This story is an example of revisionist myth since the Furies are taking on their archetypal roles as nemeses in a modern setting. Nemesis is an important part of the basic myth of the hero. This can be shown using the following structural notation system.

[Mythic algebra](#) can be used to model stories and show patterns. As a formal system, it may identify tropes for either the writer or reader, and the artist or viewer. While the choices of these tropes occur in a social context, aside from that they still may have a structure. Such formalism does not require determinism, but rather presents the most logical possibilities granted by the language. It consists of six set elements (p,q,x,y,s,t) representing people and their acts, things and their actions, space, and time. For a person (p) 's acts I have been using q , and for things x and their actions y , space s and time t . Mappings of these elements occur between sets with either mythic M or real R status. The algebra's contents can be briefly listed as: $(p,q,x,y,s,t), M, R, M/R, R/M, \rightarrow, +, -$

Here the slash / stands for a mapping of a set element from one set to another, and the "state" of the set is indicated by mythic M or real R , so that M/R means an element has moved from a mythic set into a real set, and R/M means an element has moved from a real set into a mythic set. There are three basic operations $+$, $-$, \rightarrow of addition, subtraction, or the transform \rightarrow can just alter elements or states by switching them.

An example of the transform use can occur with other kinds of sets, say if we define status not by mythic or real but by heroic, H , or villainous, V . Then $H \rightarrow V$ would mean that a hero set has become a villain set. In an attempt to avoid redundancy and achieve economy of notation, these set states can stand for any elements they may contain. To show a normal person becoming a hero, we can write $(p) \rightarrow H$. To show a villain becoming a regular person, we can write $V \rightarrow (p)$. We now have all of the notational tools that we need.

Whether their stories convey social or personal adventures, heroes can be fit into a life cycle model, such as Joseph Campbell's interpretation combined with a mirror-image tragic hero pattern. Campbell has a three-stage analysis of the hero: separation from the world, initiation into heroic status, and return to society with a benefit to save it ([1968](#): 30). One may call this a positive, upswinging pattern with no apparent downside. In print, Campbell ignores any downward swing, as if it isn't part of the hero's story. Glossing over it in his book *The Hero With a Thousand Faces*, he

notes “But a deterioration may take place in the character of the representative of the father... The upholding idea of the community is lost. Force is all that binds it. The emperor becomes the tyrant ogre (Herod-Nimrod), the usurper from whom the world is now to be saved” (1968: 349).

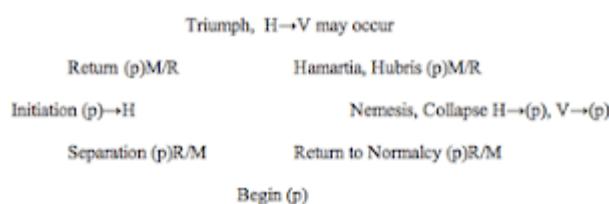
I suggest that these three stages are only one half of the hero’s story instead of the complete one. There is a second half of the story, the downside. The tragic downswing may be interpreted as the declining years of a hero who may even become a villain, wherein [hubris](#) is punished by [nemesis](#), or a character flaw [hamartia](#) leads to collapse.

Hamartia is the fatal character flaw that manifests once the hero has done his job and saved society. Aristotle remarks on it in Chap. XIII of *Poetics* when discussing plot, “The change of fortune should be not from bad to good, but, reversely, from good to bad. It should come about as the result not of vice, but of some great error or frailty, in a character either such as we have described, or better rather than worse” (1961: 76). It leads to hubris, a conceited pride, perhaps that he should lord it over society or flaunt the rule of the gods. This results in his opponent, nemesis, arising to cut him down to size. Herbert Ross (1968: 208) commented about nemesis:

The second divine entity of this name is an abstraction – i.e., indignant disapproval of wrongdoing, particularly the disapproval of the gods, with the consequent punishment of a sinful or overly prosperous man; and the eventual personification of that disapproval (first traceable in Hesiod).

If the fallen hero is lucky, he survives as a mere commoner, back where he began long ago. For a more tragic hero, the hamartia may consist in letting himself transform into a villain. Darth Vader is an example of one. Such transformations represent the peak of a career, whether the subsequent decline is into villainy or just the playing out of hamartia and hubris.

Whether it ends in self sacrifice or just with a defeated villain, the structure of the story remains the same. We have a pattern like a life cycle, with a beginning of positive growth and then a decline to a final end. As a sequential narrative, the algebra of each stage would line up as: (p), (p)R/M, (p)→H, (p)M/R, H→V, (p)M/R, H→(p), V→(p), (p)R/M. Arranged visually, the cycle looks like this:



There is a convenient symmetry in this, with diametrically opposite events. The first separation from society is physical, whereas the second separation is a social separation due to the attitudes of hamartia and hubris alienating the hero. The hero's first return is to home society, and the final return is to commoner status. The first initiation is into hero status among mythic settings, while nemesis initiates the hero into personal defeat and humility, undoing his special status.

Mythic algebra shows some features of this symmetry. We can use sets to map a person p as they travel from mythic settings to real or vice versa. An abbreviated use of the algebra gives $(p)R/M$ when the hero separates from his world R to go to the mythic one M , and $(p)M/R$ when he returns to R . These are balanced by $(p)M/R$ at the hubris stage and $(p)R/M$ at the return to normalcy, although it is for a different character than the hero. In summary, the symmetric functions pair off as follows:

Separation: $(p)R/M$, and Return to Normal: $(p)R/M$

Return: $(p)M/R$, and Hubris: $(p)M/R$

As far as the algebra itself is concerned, what changes in pairs is that the M and R states switch.

As a final symmetry, we may note that the spot where hamartia and hubris occur shares a transit event with nemeses. Once hubris occurs, the gods may launch the nemeses from the mythic land M . There is a $(p)M/R$ occurrence when mythic creatures (p) come to R , Earth, to knock the hero down to humble size. In the actual nemesis and collapse stage the creatures finally meet their target and inflict the punishment of the gods. The nemeses may take a while to find the hero and inflict his punishment. For example, the Furies were searching for [Orestes](#), seeming two steps behind him before catching up. Thus, we have the expression, "He met his nemesis." Once their mission is done and the collapse has occurred, the nemeses themselves can return to their mythic land from the real one. There is a reverse transit $(p)R/M$ when the creatures return to M , their mythic realm.

In *The Hiketeia*, the Furies' return to their underworld $(p)R/M$ is implied on the last page of the story as they walk away from the Amazons' embassy in New York City. The above image of them confronted by Wonder Woman is the first acknowledgement that they have come to Earth, $(p)M/R$. The layouts and framing of this image fit a subtext of the hero cycle. Wonder Woman floats in the air, looking down upon the Furies as if she were the dominant and more powerful person. Yet the Furies are the stronger ones who could destroy her. But they have come from their underworld, so it is fitting that they are looking up to her.

This confrontation occurs across the street from the Amazons' embassy. This embassy itself serves as a setting for Danielle to go through the hero cycle. What is an embassy but the territory of another land, in this case a mythic land of Amazons.

Danielle separates from the mundane world when she enters the embassy, (p)R/M. Her purpose is to seek protection from Batman, who wants to arrest her for killing criminals. Knowledgeable about ancient Greece, Danielle comes as a suppliant under the custom of [hiketeia](#).

The hiketeia ritual initiates Danielle to become a protegee of Wonder Woman, (p)→H. Danielle returns to the real world when she flees the embassy, (p)M/R. The myth was revised in that she remains a nonhero, while the Furies' target is Wonder Woman instead of Danielle. Wonder Woman has the hubris to take on the ancient custom of hiketeia, and she and Batman are the ones attacked as they try to stop Danielle from committing suicide.

Batman is Danielle's earthly nemesis, of course, and does confront her, but Wonder Woman intervenes to fight him. In the Nemesis stage, Wonder Woman is actually fighting with two kinds of nemeses: Batman and the Furies. Danielle leaps from a cliff, her death ending her protegee status, H→(p), and also ending the fight. Life returns to normal for Wonder Woman and Batman. The story ends as it began, with Wonder Woman looking out of her embassy window at the Furies.

Could the ancient Greeks have ever imagined that their Furies would meet up with Wonder Woman thousands of years later? This hero cycle does not mean that all hero stories have to follow this structure, if only because any storyteller can embellish and improvise the tale to make it different. If hero cycles are universal – whether Campbell's, the tragic Greek, or their combination – they are only so as logical possibilities.

Heroes and villains don't have to change. The basic hero cycle is a kind of template, a starting point for anyone to fill in the blanks or alter the pattern. And part of the joy of humanity is the endless creativity we have to come up with new stories, even if they begin as revisions of myths.

■

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This is the second of my Comic Book trilogy, and I believe the first academic paper ever on comic book antivillains. It has not been published before, except for my own blog post in 2014. A central idea here is that the urge to make a consistent life story for a character can persist over decades of different writers and even rebootings of the story.

Wednesday, July 2, 2014

Antivillains, Hero Cycles, and Mythic Algebra

Abstract

While antiheroes and antivillains can be modeled just as parts of a linear scale of qualities, they can also fit into cyclic models showing character growth or decay. One cycle is a developmental progression with an abrupt transition from hero to villain. Another cycle fits a seasonal progression with more gradual transitions. These cycles have similarities to structures of classical hero stories. Section 1 introduces the idea that comic book characters can go through realistic life changes as they develop in character continuity over the years. Section 2 presents a model of the classical hero cycle fitting a life cycle pattern of growth and decay. The growth stage is exemplified by Joseph Campbell's hero formula, while the declining stage is represented by the classical Greek tragic hero stages of hubris, nemesis and collapse. Section 3 uses antiheroes and anti-villains to make a developmental cycle of character growth and decay. Section 4 uses a rearrangement of the positions of antiheroes and anti-villains to make a seasonal cycle with a pattern resembling the gradual changes of spring and fall. The character Ambush Bug is described as fitting this cycle over the course of his appearances, beginning in 1982. Section 5 presents the tools of mythic algebra used to model stories. The algebra consists of sets with six elements, four state functions and three operations. Section 6 uses the algebra to model the life cycle of the character Magneto. His life cycle is portrayed as a variation on the developmental cycle, only using anti-villain stages without antihero stages. Section 7 combines all of the life cycle models into an ultimate model resembling a HeroClix game. This reveals that the antihero and anti-villains stages resemble Campbell's separation stage and the tragic stage of return to normal. The appeal of cyclical stories is discussed and considered independent of any structural determinism.

Introduction

It may seem strange to use comic book superheroes as exemplars of structural storytelling, since their characters can go through arbitrary changes merely to suit the

needs of novelty. Each next villain and next crisis has to be sufficiently different from the previous ones to keep the readers buying more comic books, even if most readers outgrow the genre after a few years. Frustrated adolescents indulge in escapist power fantasies, then grow older and really do escape home, no longer needing to daydream, instead pursuing work, romance, and college. So the characters of their daydreams only need to have a few years' worth of novel situations to adventure in, then stories may recycle for the next generation of readers.

Recycling can take place on a grand scale as well as on the personal scale of a particular story character. Writers may consciously pursue cyclical patterns in storytelling based upon ideas like an alternating 11 year sunspot cycle (Morrison 2012: 332). Reversing polarities of our sun have been matched to reversing attitudes in the pop culture of youth, allegedly accounting for a shift from angry extroversion to more introspection. Or in a more obvious bid to improve sales, superhero comics undergo extensive recycling when their universes are restarted in what is termed a continuity reboot (TV Tropes 2014). Stories begin all over, updated with the most modern trappings.

Nonetheless, writers and companies try to keep some kind of consistent continuity over a character's life, which pleases readers who hang on indefinitely. The changes a character goes through may derive from the need for novelty, but they still reflect on life that the reader can relate to. The most famous example is Spiderman, originally a troubled teen with a smart-aleck attitude when he was in costume. Everyone has personal problems, and so does Spiderman. This is a form of realism.

Another realistic characterization is for superpowered people to go through life changes in the process of growing up. This is easily shown in their personal lives: they may get married, settle down and raise kids. However, it can also appear in the roles they occupy as heroes and villains, or antiheroes and antivillains. These four basic roles can fit into patterns of growth and development, reflecting the stages of ordinary life.

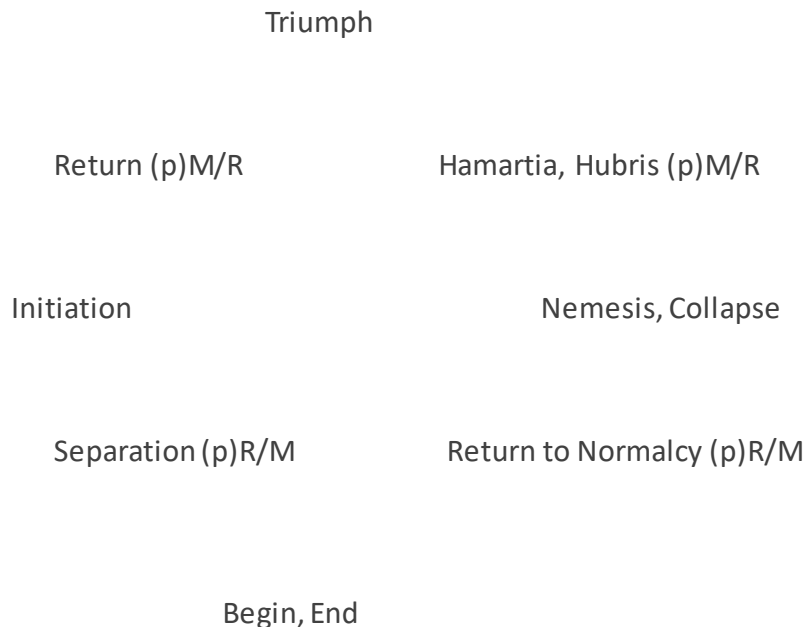
Such patterns can be notated with mythic algebra, possibly revealing real structures that match storytelling to the real cycles of life. Living things generally begin, grow, decline, and end. Is this reflected in character roles? We shall look at two examples – one from DC and one from Marvel – to see that characters can fit into life cycles even though their stories span decades and different writers.

Hero Cycles and Life Cycles

The essential roles of comic book superheroes to focus on are what give them their generic names, being heroes or villains or variations on those, antiheroes or antivillains.

Of these four roles, the one most clearly portrayed as a strong societal support is the hero. In classical stories, he saves people or communities. The hero's social functions have been analyzed from different perspectives, ranging from the historical critique of Lord Raglan (1936) to the psychoanalysis of Otto Rank to the Jungian-pop psychology of Joseph Campbell. Unlike mythic heroes, comic book superheroes usually have limited roles to punish villains instead of changing the world. Nonetheless, superheroes are spoken of as modern mythic heroes. Their creators even go so far as giving them origins as orphans, which fit a classical trope identified by Rank (1909) .

This trend in superhero comics is called 'revisionist myth,' to take old stories and recast them with superheroes. One popular plot device is to use Joseph Campbell's mythic hero formula of separation-initiation-return (Campbell 1968). That pattern can be combined with the tragic Greek hero formula of hamartia-hubris-nemesis. The two hero formulas fit together to make a complete life cycle of growth and decline back to the origin:



In the full hero cycle above, there is an essential trace of mythic algebra shown in the notations (p)M/R and (p)R/M. Characters (p) are mapping between different provinces, whether from the mundane, real world to a mythic realm, R/M, or from mythic to real, M/R. The state functions M,R have been defined by provenance, or location in spacetime (s,t). Section five below will present this algebra, while section six will give an application of it.

A good superhero comic example fitting this complete cycle is the graphic novel *Wonder Woman: The Hiketeia* (Rucka 2002). This story and its hero cycle have been examined using mythic algebra (Griffin 2012). Other examples to fit this full hero cycle include Oedipus, Jason the Argonaut (Wood 2005) and Darth Vader from the Star Wars science fiction movies. As revisionist myth, this life cycle model can be used to develop stories for comic book superheroes and super villains or antiheroes and antivillains. Moreover, some comic book characters exemplify complete life cycles although not intended to as such, but the logical best possibilities for their character development lead in the natural directions of a life cycle model. We shall look at two of these soon.

First we should delineate the possible cycles that can represent a realistic life progression or variations on that. The starting model would mimic the real life pattern of birth-growth-decline-death, but even here two basic models are possible: a seasonal one of gradual transitions or one of abrupt change from good to bad. The seasonal model of antihero-hero-antivillain-villain is analogous to spring-summer-fall-winter. Whereas a progression of antihero-hero-villain-antivillain is when the hero becomes a villain without a period of gradual corruption. Either of these cycles requires the character roles of antiheroes and antivillains, which need explanation.

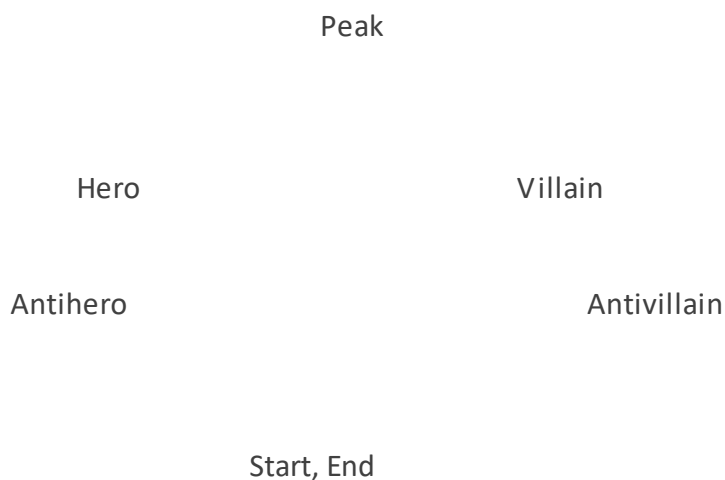
A Developmental Cycle: Antiheroes and Antivillains

Superhero comic books have variant characters, antiheroes and antivillains, who can fit into a model similar to the hero model. These anti-characters are popular (Rorschach, Punisher, Catwoman), and are usually thought of as only fitting at one spot on a linear spectrum, say based on the concept of good-vs-evil:

Hero_____Antihero_____Antivillain_____Villain

'Anti' does not mean exact opposite as it does when we speak of antimatter versus matter. Rather, it connotes a mixture or contamination of qualities, thus more befitting the meaning of anti as 'against' the usual concept. One could say that an antihero is a hero who doesn't care if he acts like a villain, whereas an antivillain is a villain who doesn't care if he acts like a hero sometimes. And perhaps characters or even real people can stay all their lives in one place on this spectrum. But there can be a life cycle, making the transition from hero to villain, or if a villain becomes a hero. The anti stages are then the less effective versions of their final forms.

For example, a callow youth full of antisocial cynicism has not matured enough to become a full hero yet, so starts out as an antihero. He stays around too long as a hero and ages into a villain. The older he gets, the more decrepit he becomes, reduced in power and regaining some humility before the end. Or one may have a bad start in life and rise to become a full villain, then at the peak of power realize that society will collapse and all will be lost unless he changes to heroism. Declining years are comforted by the return of cynicism and less than sterling behavior. Considering either path, we get a single character model capable of two directions:



Possible Permutations: A Seasonal Cycle

What of the other possible orderings of these four types? Starting with the hero, two other basic patterns exist when bidirectional circular, here laid out linearly:

Hero_____Villain_____Antihero_____Antivillain
 Hero_____Antihero_____Villain_____Antivillain

That is, the hero can be directly across the circle from any of the other three (the third spot on the line), and the adjacent spots would depend on the character path for their sequence order. Different life stories would fit these other plot scenarios, but for consistency of character development, a model resembling natural growth and decay

has an elegance to it. The Antihero—Hero—Antivillain—Villain pattern seems to fit this criterion better than most other cycles, just as a seasonal cycle would fit a larger time frame, such as Spring—Summer—Fall—Winter:



The DC Comics character Ambush Bug exemplifies this cycle, but going in the reverse direction. He started out in 1982 as a villain for only one issue. Superman and The Doom Patrol defeated him then. In 1983 he made his second appearance, getting increasingly wacky as he fought Superman and the Legion of Substitute Heroes. At the start of his third story in 1984 he decided he wanted to become a good guy. In trying to be a superhero, he oppressed the general public. He had instead become an ineffective villain, or antivillain, for this one issue. Supergirl saved the public from him and the police carried him away. In his subsequent appearances he was clearly among the good guys if only because he could hang out with them and did no harm. In fact he seldom accomplished any good, as he existed to be a truly funny character, a crazy perpetual loser. In 2010, he joined The Doom Patrol by default since he was now living on their island. This could mark the beginning of his true antihero status because when he was not helping them he was driving them to distraction. Seldom useful, his teleporting abilities were critical to saving the team a few times. He now seems permanently established as a comic relief character who at any moment could spout metanarrative in awareness that he is a comic book character.



FIG 1, DC Comics Presents #59, July 1983.

Rather than going around the cycle again, or even reversing course, Ambush Bug has found his place as a funny antihero. Next, we must present the tools of notation to analyze these character life cycles.

Mythic Algebra

Now to introduce our modeling tools for these cycles. Derived from mythology, mythic algebra consists of six set elements representing people and their acts, things and their actions, space and time. Mappings of these elements occur between sets, which can be applied to storytelling. For our purposes, the useful parts of the system can be written in this short hierarchical list:

$(p,q,x,y,s,t), M, R, H, V, +, -, \rightarrow$

The complete list has separate levels:

Sets (p,q,x,y,s,t) of elements people p and their actions q , things x and their actions y , space s and time t .

Set status or state labels such as M for mythic, R for real, H for heroic and V for villainous. Labels, if used, indicate the quality of the elements in a set. As with the

contrast of M and R, the states H and V are a bipolar pair of opposites. That is, mythic is not real, and a hero H(p) is not a villain V(p).

Operations +, −, → of addition, subtraction or just altering elements or states by the transformer arrow →.

Other features of mythic algebra can also be illustrated with antihero and antivillain cycles. Using subtraction to mean a lack of some quality instead of a negative opposite, an antihero can be written as −H(p) and an antivillain as −V(p), or in more abbreviated forms as −H and −V.

In these cycles, a character's role status changes, thus the transform arrow → gets used. For example, to show an antivillain becoming a regular person, we can write $-V \rightarrow (p)$. Going once around the developmental cycle could then be notated as:

$$-H \rightarrow H \rightarrow V \rightarrow -V$$

while going once around the seasonal cycle would be notated as:

$$-H \rightarrow H \rightarrow -V \rightarrow V$$

Previous publications have made use of this entire notation, but we will make limited use of it here just to describe the character cycles. To do this, in section seven we shall put all of the cycles together by comparing stages at similar places on each cycle. Before we do that, we should note that these cycles in their pure forms may make the most logical sense but do not have to match the life of any particular character. For example, let us examine one who could be considered a variation on the developmental cycle.

The Magneto Monopole

The Marvel Comics character Magneto's life history will show that hero or villain states do not have to pair up next to each other in sequence. Magneto exemplifies this as an antivillain. Though he is often labeled a villain, here we see him doing a good deed:



FIG 2, X-Men #4, March 1964.

The above illustration provides an example to show how mythic algebra notates dramatic scenes. It shows an early Magneto saving Wanda, the future Scarlet Witch, from superstitious villagers. The setting (s,t) is European, presumably in the 1960s. We can distinguish other elements by numbers, so Wanda can be p1 and Magneto p2 while the villagers can be a generic p. The action y in the first scene is that buildings x are burning, so we have (p1,p,x,y,s,t). In the second scene, Magneto has intervened and his action, the only one in the scene, can be the only q element, so the totality is notated as (p2,q,p1,s,t). These two scenes may then be listed in their narrative sequence:

(p1,p,x,y,s,t), (p2,q,p1,s,t).

The notation is flexible, so another way to describe the scene is to declare Magneto an antivillain -V and not bother with provenance (s,t) in the real world. The essential narrative sequence then becomes:

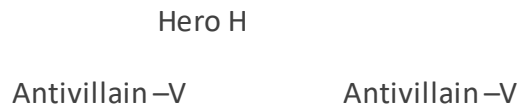
(p1,p,x,y), (-V(p2,q),p1).

Here we see that parentheses may nest. The antivillain state -V is a function using the elements (p2,q). As mentioned, this particular scene is early in Magneto's career, so he is a rising antivillain yet to join the X-Men or become a hero, which would be written in short form as -V→H. In fact, this scene is the first clear example in comics of Magneto

acting as an antivillain and not just a villain, which we can perhaps appreciate more if we look at his own developmental life cycle.

The main stages of Magneto's life can be notated as: $(p) \rightarrow -V \rightarrow H \rightarrow -V$

From a start as a regular person, he became an antivillain, then switched to become a hero, then resumed his role as antivillain. This is his basic cycle, which has gone full circle a few times and started over again after he would lose his powers:



Magneto's attitude resulted from his time spent as a youthful inmate of a Nazi concentration camp during World War Two. He was born a normal youth (p), not yet controlling the force of magnetism, but his mutant powers began to emerge during the war. His experience of social persecution continued postwar as he developed his mutant abilities. As an adult, he fully came into his powers, $(p) \rightarrow -V$, by killing a mob of people who let his first daughter die. That event preceded the saving of the Scarlet Witch, later retconned as his second daughter. He joined with Prof. Charles Xavier and so led a brief career as a do-gooder, $-V \rightarrow H$, but he split from Xavier and became the founder of the Brotherhood of Evil Mutants, $H \rightarrow -V$. His first appearance in comic books was in the X-Men's debut issue in 1963. He was already a villain with grandiose plans to protect mutant humans from persecution, by attacking everyone else. This twisted-yet-noble goal of protection is what makes him an antivillain. Over the course of five decades he has taken on many roles, a complex character who in 1985 became a leader of the X-Men. That is another convenient spot to mark his entering the status of hero, $-V \rightarrow H$. By 1989 he had left the X-Men and resumed his grandiose plans to protect mutants, $H \rightarrow -V$.

Forever after he has never been a mere villain, but always been capable of doing something good while pursuing his harsh agenda of protecting mutants from the human race. Even before his 1985 takeover of the X-Men, he was portrayed as their final leader in the 1981 time-travel storyline 'Days of Future Past' (now a major motion picture). In that story, the transformation into a hero, $-V \rightarrow H$, is made unambiguous by Magneto appearing in a wheelchair, as if he were now Professor Xavier:



FIG 3, Uncanny X-Men #141, Jan. 1981.

This 1981 hero cycle is really his first go-around in print although not the first in his biography. We should count his earlier time spent as a partner of Professor Xavier as his first hero cycle. It would be so in his biography, but since that was a later retcon it would

not be the first print appearance of a cycling into and out of Hero status.

In the next thirty-plus years, Magneto has gone around the cycle more times, and rejoined the X-men more times (Lockheed40 2011). As of this writing, Magneto has once again left the X-Men and resumed mass killing of enemies, $H \rightarrow -V$, in a limited series that never uses the word antivillain but can imply it, entitled *Magneto: Not a Hero* (Young 2012). At story's end, Magneto tells his fallen twin, Joseph, that he rejects the notion itself of heroes and villains:

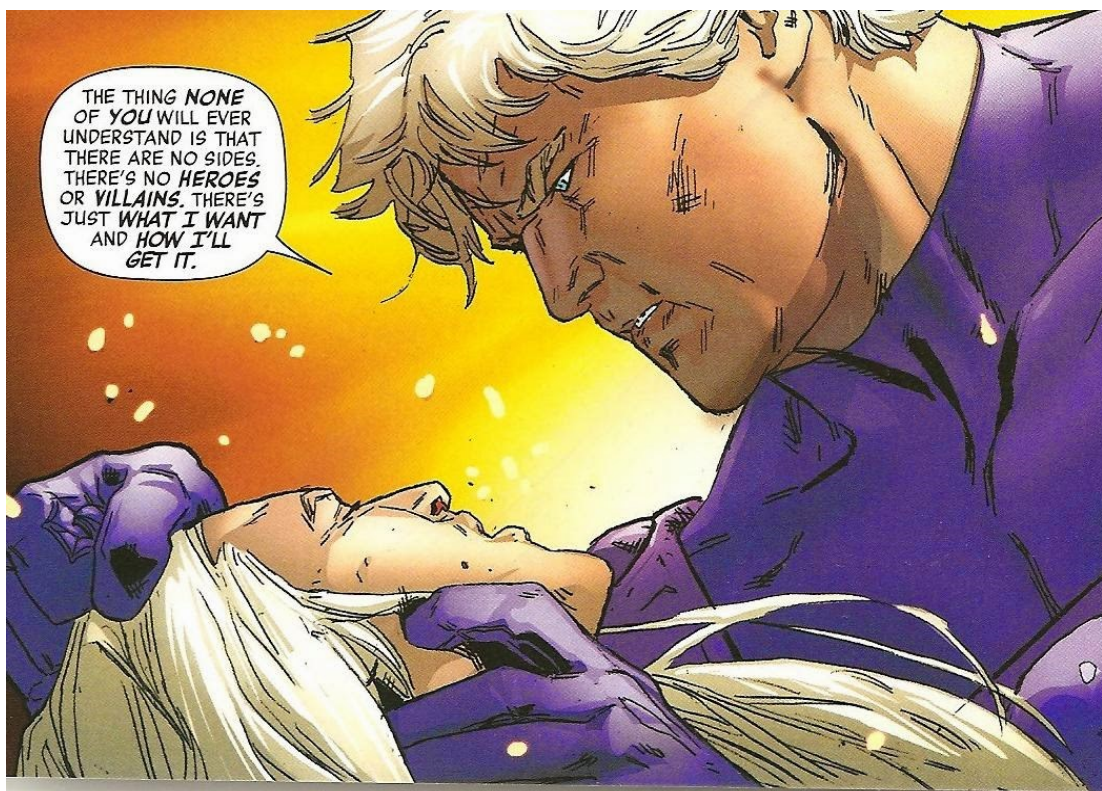


FIG 4, *Magneto: Not a Hero* #4, April 2012.

Magneto makes his own attractive field. It is no surprise that over five decades, writers have given an important character like Magneto a consistent biography. Given the need for characters to go through interesting changes, the more satisfying results would make some kind of life path that resonates with real people. And real people go through a life cycle of growth and decay, unavoidably physical if not social too. Story characters have

the advantage of recycling endlessly. Next, we examine these recombinations.

The Ultimate HeroClix

Combining both the seasonal and developmental cycles with the classical hero cycles makes an ultimate cycle in which a character can move in either direction any number of times to suit the vagaries of storytelling. This ultimate cycle resembles the base of a game piece in the HeroClix game, wherein a throw of the dice will determine how many positions the clicker moves. As in the game, a character's abilities and a player's personality will make for boldness or folly of actions, and consequences will result. If a player goes too far, there will be no more clicks left and the character dies. However, in the game of storytelling, comicbook characters can usually be reborn for any number of reasons. Here is the combined cycle, without its accompanying mythic algebra:



As represented here, the combination makes one large cycle with single steps in linear sequence, so the cycle events could mix. For example, an antihero could undergo initiation to become a hero. Or the mixing of cycles could also be considered as overlapping, similar types of events. It remains to point out that the Antihero stage is then analogous to the Separation stage of Campbell's hero model, and the seasonal Villain or developmental Antivillain stage is analogous to the Return to Normalcy stage of the Greek tragic hero. It sheds further light on the functions of these roles if we look at the mythic algebra. Let us further abbreviate the notation by omitting the status of a person (p) except to note their travel R/M from real to mythiclands or vice versa. Where they are will be notated after the element (p):

$$H \leftrightarrow V$$

(p)M/R

(p)M/R

H

–V or V

(p) → H

H or V → (p)

–H

V or –V

(p)R/M

(p)R/M

Start, End

A compatibility shows up when the cycles are compared:

Separation: $(p)R/M$, normal person leaves the real world

Antihero also starts as a person in the real world

Initiation: $(p) \rightarrow H$, person becomes a Hero

Antihero also becomes a Hero

Peak: $H \leftrightarrow V$, Hero becomes Villain, or vice versa

developmental Hero becomes Villain

seasonal Hero becomes Antivillain

Collapse: $H \text{ or } V \rightarrow (p)$, Hero or Villain loses power

seasonal Antivillain ends as Villain

developmental Villain ends as Antivillain

There is one more final compatibility to note. Even though stories of antiheroes and antivillains do not typically involve travel to and from mythic lands, characters may leave or return to normal life from those anti states if, like Magneto, they go full cycle and lose all of their powers. In the mythic Hero cycles, one leaves or returns to a mundane life in the real world. At the end of the hero's story, the main character is lucky if he or she remains alive and well. And this is the end of our story, but for some cautionary remarks

on the nature of structural analysis.

Of course a story does not have to fit any traditional structure to be a good story. There can be an aesthetic satisfaction if a story does have a cyclical nature and have an ending resembling its beginning. This has been appreciated at least since Aristotle. He wrote in section 18 of his *Poetics*, 'In speaking of a tragedy as the same or different, the best test to take is the Plot. Identity exists where the complication and unraveling are the same. Many poets tie the knot well, but unravel it ill. Both parts, however, should always be mastered' (1956: 24). There is also a logical symmetry to cyclical stories which is clearly indicated when one resorts to mythic algebra notation. In spite of the logical and aesthetic appeal of cyclical stories, they may comprise a small minority of the endless variety of tales that people tell. Yet they do have their appeal, and that is the appeal of symmetry, whether in abstract notation or story.

Mythic algebra at least provides a shorthand notation system to describe these symmetric, cyclical stories. No claims of determinism are necessary for such formalism. Perhaps some of these patterns and characters may come from instinctive archetypes, but that notion is unnecessary for the use of mythic algebra, or to enjoy tales of antiheroes and antivillains. The plot conventions of storytelling are not inviolate, as the rich variety of superhero comic books attests.

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The Doom Patrol article is the last of my trilogy on mythic algebra applied to comic books. It is also unpublished except on my blog until now. My trilogies all have the same pattern: the first is based on mythic spacetime, the second deals with additive processes, and the third (like this one) explores the nonadditive processes of association.

Friday, August 1, 2014

The Doom Patrol: Exemplars of Association in Mythic Algebra

Abstract

Mythic algebra is used to model storytelling using sets, transforms, and addition. Another operation in mythic algebra is association, together with its undoing operation of dissociation. Each member of the original Doom Patrol can exemplify an association trait, to stand for collection, binding, comparison, ordering and linkage. The Chief is a collector. Robotman represents binding, while Negative Man represents the unbinding of dissociation. Beast Boy uses comparison, and Elasti-Girl uses ordering. Mento has family linkages to Beast Boy and Elasti-Girl, and a scene of this provides an example of notating a narrative sequence in mythic algebra. After a brief comparison to the X-Men, an in-depth comparison to the Fantastic Four shows that despite their similarities, only the Doom Patrol are association exemplars. Principles of set element exclusions and the modeling of specific qualities further refine the concept of when association exists. This comparison suggests legal uses for mythic algebra in copyright or creators' rights. Other uses are to help composition, reader appreciation, and scholarly analysis. The paucity of scholarly attention to the Doom Patrol is discussed, leading to speculation on why the team has survived many cancellations and returned, possibly due to the special appeal of modeling so many different types of association.

Introduction: The Mythic Algebra of Comic Books

Mythic algebra is used to model storytelling and other symbolic processes. The contents of the algebra can be listed in a lineup as:

$(p,q,x,y,s,t), M, R, M/R, R/M, \rightarrow, +, -, *, -*$

where sets (p,q,x,y,s,t) consist of the elements people p , their actions q , things x and their actions y , and spacetime s,t . Sets may have a state like mythic M , real R , heroic H , or villainous V . Mapping or travel between sets is notated by M/R or R/M , for example, and elements or states may simply change by a transform arrow \rightarrow . An article on

Wonder Woman [\(2012\)](#) presented most of the basic operations and made extensive use of mappings and transforms, M/R , R/M , \rightarrow . Set elements also interact by the operations of addition or subtraction $+$, $-$ which indicate combination or its undoing. An example would be $p+x$ to represent the person Thor holding his hammer, the thing x . If he threw the hammer, it would be an action q or also the subtraction of $p-x$ since the hammer is now gone from the person. There can be more than one way to describe something with the algebra, or to string together sets to make a narrative.

The remaining operation in mythic algebra that has not yet been discussed is association, together with its undoing operation of dissociation, notated in the above lineup as $*$ and $-*$. This is the more general alternative to addition, in which things are connected but not combined. There are many ways to interpret association, but they can all be considered variations on connection. Previous articles in other journals have made use of association to stand for collection, binding, comparison, ordering and linkage. Each member of the original Doom Patrol can exemplify one of these traits.

We should first note that any supergroup is an association of related members in a single set, such as $(p1*p2*p3*p4*p5*p6)$ for a team with six members. The last image of the Doom Patrol from their [final issue in 1968](#) clearly illustrates this. Having chosen to sacrifice their lives, their last gesture is a team handshake, a physical and emotional connection (fig. 1).



FIG 1 Doom Patrol #121, Sept-Oct 1968.

The Chief

The action of making such a set can be considered one type of association. The founder of the Doom Patrol, Niles Caulder or the Chief, is therefore the perfect representative of the set-collecting type of association. The Chief is a scientist in a wheelchair who recruited each of the original members separately. For some of the members, he did more than recruit them; he also created them from the ruined bodies of normal human beings. We may notate the Chief's operation as (*) to signify that he makes a set of associations.

Robotman

So to our next type of association, the binding together. An ultimate example of this is the character Cliff Steele, also known as Robotman. He was retrieved from a racing car accident, and the Chief transplanted his brain into a robot body. The only living tissue of Cliff is bound inside a metal casing. He is often in danger of being unbound, or having his metal body ruined so that his brain is exposed and dies. Sometimes Cliff will partially unbind himself, such as pulling off a limb to use as a club in a fight. To show his original binding into a metal body, we can write $(p*x)$, where p is the person of Cliff and the thing x is his robot body.

Negative Man

Another good example of binding is Larry Trainor, called Negative Man, but he is an even better example of unbinding, or dissociation. This is the undoing of association. Larry was a test pilot who crashed after encountering strange radiation in the upper atmosphere. His body emits lethal levels of radioactivity, and he is bundled like a mummy in bandages treated with a shielding material created by the Chief. Larry unbinds by sending his energy form, a creature of black lightning, out of his body for a short period of time before it must return. This is such a dramatic action that it was used on the cover of their [first issue in 1963](#) (fig. 2). One way to write Larry's unbinding is as an action q of his negative energy self which is dissociating from p , his physical self: $(q-*p)$. This avoids the issue of how many p selves does Larry have, which was exploited by other writers in later series.

If we assign a negative value to Larry's energy self, as $-p$, then we can distinguish it from his physical body p . The unbinding can then be written as: $(-p -*p)$. We might then use the q action to represent the radiation that comes off of Larry's body and must be shielded: (p,q) . As a character, Negative Man follows the law of conservation of energy, in that he is either radiating from his physical body or taking the energy out completely as the flying black lightning. He even has an analog to radioactive half-life since the negative self can only exist apart from the body for one minute. Visually, he goes from being one person to two: (p,q) , $(-p -*p)$, $(-p,p,t)$ using t to represent the time limit, then the two selves must rebind and merge into the appearance of one, as the transform arrow shows: $(-p*p \rightarrow p)$.

FIG 2 My Greatest Adventure #80, June 1963.



The sequence of Larry's energy states is then (p,q) , $(p,-p)$, (p,q) and the energy conservation law can be stated as if it were from a logic truth table: q or not- p . The energy states switch, so a transform arrow can be used, $(q \rightarrow -p)$, or $(-p \rightarrow q)$, limited by the time constraint. The half-life analog could be listed as a sequence of time elements from one to sixty seconds: $(t1,...t60)$, and this sequence can form a threshold in the illustration of Larry's Negative Man as a cyclical process, going clockwise:

$p,-p$

$-* t1, ..., t60 *$

p,q

Beast Boy

To represent the comparison form of association, we may consider Gar Logan, or Beast Boy. He imitates other creatures by shape shifting, and thus may be considered a comparison to them. Beast Boy gained his powers from medical treatments before he was orphaned. The two remaining members of the Doom Patrol became his adopted parents. If we consider animals as things x , then Beast Boy's comparing to them would also be described as $(p*x)$. When he changes into a form resembling them, we may use the transform arrow \rightarrow , as will be shown in the examples with Mento.

Elasti-Girl

It is a bit of a stretch to claim Rita Farr as an exemplar of the ordering form of association, but she will do for it because that is what she does: stretching. Her team name is Elasti-Girl. On a movie shoot in Africa, she was affected by volcanic gases. She can grow or shrink in size and stretch her limbs out. As such, she becomes bigger or smaller than her normal size by orders of magnitude. The ordering is not of the common 1st, 2nd, 3rd ... variety, but of variations from the original size: small, normal, big. One can see that this involves comparison, but unlike Beast Boy's form of comparison, there is a scale of order for one entity or set element. Beast Boy compares to any animal,

but Elasti-Girl only compares to herself. Her association must be written as (p*p) then, with the same set element p used twice. We see in the above examples that she chose to end her life as a giant, while the first image of her is as a miniature.

Mento

An easier form of association is linkage. Rita's husband is Steve Dayton, the fifth richest man in the world. As the de facto team member Mento, he wears a special helmet that magnifies his thought waves and gives him various powers like telekinesis and creating illusions. He is thus linked to Rita by marriage and mentally with his helmet if he chooses to use it that way. The following [panels from 1967](#) (fig. 3) indicate Steve's linkage to both Rita and Beast Boy. Index numbers can distinguish p elements, so the family relations can begin with Mento as p1, Rita as p2, and Beast Boy as p3, giving (p1*p2), (p1*p3). If we also assign Robotman as p4, we can then give examples of the different ways a narrative sequence can be described with sets:

FIG 3 Doom Patrol #111, May 1967.



In the first panel, Beast Boy does two actions: $q1$ to raise the statue and $q2$ to break the board. He has also transformed into a bear, which could be written as $p3 \rightarrow x$, and so his actions as an animal are $y1$ and $y2$, not $q1$ and $q2$. Mento is merely standing in grief while thinking of his adoption of the boy, so the association could be shown with him, $(p1 * p3)$. If we put all of this into a single set for one panel, it could be $(p1 * p3, p3 \rightarrow x, y1, y2)$. If we care about the western reading style of left to right, then we would list Mento after Beast Boy and the set would look like $(p3 \rightarrow x, y1, y2, p1 * p3)$.

In the next panel, Cliff and Rita stop by to say hi on their way out, with Rita calling Steve 'dear.' This justifies noting the family links of the two, with $(p2 * p1)$ equivalent to $(p1 * p2)$ but preferable since it gives precedence to Rita who is the actual speaker. Beast Boy stands in the background, now in human form, so he must also be included in the set. We may want to note that he just changed from a bear to human as $(x \rightarrow p3)$. To include all four characters in one set for the panel then could be $(p4, p2 * p1, x \rightarrow p3)$.

Our narrative sequence for these two panels is then $(p3 \rightarrow x, y1, y2, p1 * p3), (p4, p2 * p1, x \rightarrow p3)$. Note that we did not use the association symbol $*$ to mention the team membership of $p4$ Robotman or to describe Beast Boy's powers as $(p3 * x)$. If it had been important to the scene or of particular concern to us we could have used $*$ for those purposes. What seemed relevant was the family relations of Mento.

Mento's family links are a common form of association that most characters -- and real people -- have. Other types of association may not be so common outside of the Doom Patrol. Yet overall, association may be the most widespread operation that mythic algebra models. We model science and business with reduction to addition, but people and their stories are slippery, not so easily nailed down. Association itself exemplifies that mythic algebra is a formal system that does not require rigid determinism. It can model the constantly shifting plots, settings, and tropes of the stories we tell. Sets can be written in a narrative chain to any length needed, to cover a scene or story to whatever level of detail is assigned to their set elements. This can be a guide to analysis or an aid to creation. Of course, no one sat down with a laundry list of associations in order to invent the Doom Patrol. Their slogan of "the world's strangest heroes" provides motivation enough, but just how strange are they?

Similarities to the X-Men

The question of how strange they are involves how unique they are, and thus how similar might they be to other superhero groups, using the association of similarity. While it is true that things may be associated but not similar, or similar but not associated, this is meant in the context of mutual membership in the same set or grouping. Sometimes things may be both similar and associated together if the context is sharing some quality,

another kind of connection. The Doom Patrol has tenuous connections to two other superhero groups, if we look at their origins.

They began in 1963, a few months before the X-Men debuted, and the similarities were uncanny, such as the Chief using a wheelchair like Professor Xavier. Their original writer, Arnold Drake, in fact left the Doom Patrol to write the X-Men for Marvel Comics, yet he stayed with the Doom Patrol until their first cancellation.

Wikipedia states:

'Some similarities exist between the original Doom Patrol and Marvel Comics' original [X-Men](#). Both include misfit superheroes shunned by society and both are led by men of preternatural intelligence confined to wheelchairs. These similarities ultimately led series writer Arnold Drake to argue that the concept of the X-Men must have been based on the Doom Patrol.

Drake stated:

<p><i>...I've become more and more convinced that [Stan Lee] knowingly stole The X-Men from The Doom Patrol. Over the years I learned that an awful lot of writers and artists were working surreptitiously between [Marvel and DC]. Therefore from when I first brought the idea into [DC editor] Murray Boltinoff's office, it would've been easy for someone to walk over and hear that [I was] working on a story about a bunch of reluctant superheroes who are led by a man in a wheelchair. So over the years I began to feel that Stan had more lead time than I realized. He may well have had four, five or even six months.</i></p>
--

(X-Men #1 debuted three months after MGA #80; due to publication lag times, Lee could not have known of the Doom Patrol when he scripted the first X-Men story unless he had been told about it in advance of its publication.)'

In mythic algebra notation, we could use the character name initials as set elements to show similarities, thus Niles Caulder, the Chief of the Doom Patrol, is like Charles Xavier, the founder of the X-Men, so (NC*CX) at least for the category of (leader is in wheelchair).

Similarities to the Fantastic Four

Wikipedia goes on to state:

'However, others have noted that the Doom Patrol shares fundamental similarities with Stan Lee's earlier title, [Fantastic Four](#). The original lineup of both teams included four members, who did not have secret/double identities; each had a headquarters that was a public building in the middle of a major city; each team had one member with stretching powers (Rita Farr of the Doom Patrol, Reed Richards of the Fantastic Four),

one member with flame or flame-like powers (Larry Trainor of the DP and Johnny Storm of the FF), a member with brute strength and a freakish body, with bitterness at being trapped in it (Cliff Steele and Ben Grimm) and a member who was invisible or stayed out of the public view (Niles Caulder and Sue Storm). Both teams quarreled amongst themselves, unlike most other teams published by DC/National.'

Again resorting to mythic algebra notation, we consider these individual similarities. Reed Richards and Rita Farr both have stretching powers, so (RR*RF) for (stretching powers). Larry Trainor and Johnny Storm have flame-like powers, so (LT*JS) for (flame-like powers). Cliff Steele and Ben Grimm are tormented strong men, so (CS*BG) for (brute strength freaks). Niles Caulder and Sue Storm are both unseen, so (NC*SS) for (not seen).

These similarities were also noted by a fan blogger, reinforcing the Wikipedia analysis:

'Like the Doom Patrol, the Fantastic Four has a flying character, the Human Torch. Like Negative Man, when his powers are in effect, visually, he's a pure manifestation of his power; Negative Man is pure energy, and Torch looks like pure fire.

Like the Doom Patrol, the Fantastic Four's leader is a brilliant scientist, and its leading lady is, originally, quite shy and ready and willing to follow. Reed Richards is Mr. Fantastic, the world's most intelligent man, and he stretches, just like Elasti-Girl. Visually speaking, in an action scene, Niles Caulder is missing from the battle, much like the Invisible Girl, Susan Storm, can be said to be "missing" from the scene since she's, you know, *invisible*.

And most telling of all, like the Doom Patrol, the Fantastic Four have an orange powerhouse who can in absolutely no way even pass for human, and all he wants is to be human. Like Robotman, the Thing is gruff but really likable (the Thing is actually lovable).' (Tano 2010)

We can add some more mythic algebra similarities based on those observations. Larry Trainor and Johnny Storm have flying-energy powers, so (LT*JS) for (flying energy). Reed Richards is also like Niles Caulder for (team leader is brilliant scientist), so (RR*NC). Sue Storm and Rita Farr are both shy followers, so (SS*RF) for (shy leading ladies).

A third commentary on the similarities occurs in the TV Tropes article on the Doom Patrol, in its listing of tropes the team used:

'Follow the Leader': At one time the Patrol acted as a school... for young mutants. The two groups debuted within months of each other, however, not nearly long enough for one to be based on the other. That being said, there are also some very clear parallels between the original Doom Patrol and the Fantastic Four, who came first by a much wider margin.

Four Temperament Ensemble: The original team is one of these.'

In the TV Tropes article on the 'Four Temperament Ensemble,' the 'Comic Books' section lists both groups, as the first and second examples of the trope:

'Fantastic Four': Johnny (sanguine), Ben (choleric), Reed (melancholic), and Sue (phlegmatic). Franklin (leukine). Although the first two are more obvious than the latter, and even the first two are more complex characters. Johnny has behaved cholericly on occasion (e. g. in the early issue where he left the team because he felt unappreciated) and Ben is often melancholy and introvert, e. g. going to a bar to try and drown his sorrows (after all, you could say that usually he wants to be left alone and then Johnny plays a prank on him). Also note that the Fantastic Four are also a four-elements example in a way that does not align with the descriptions above: Johnny is Fire, Ben is Earth, Sue is Air, and Reed is Water.

Doom Patrol: The Chief (choleric), Elasti-Girl (melancholic), Negative Man (phlegmatic), and Robotman (sanguine). Alternatively, in the second incarnation: Celsius (choleric), Negative Woman (melancholic), and Tempest (phlegmatic).'

From these ancient personality types, we have the following similarities: Johnny Storm and Robotman, Cliff Steele, are sanguine, so (JS*CS) for (sanguine). Ben Grimm and Niles Caulder, The Chief, are choleric, so (BG*NC) for (choleric). Reed Richards and Rita Farr, Elasti-Girl, are melancholic, so (RR*RF) for (melancholic). Sue Storm and Negative Man, Larry Trainor, are phlegmatic, so (SS*LT) for (phlegmatic).

From three different commentators, we have acquired quite a list of character similarities: (NC*CX), (RR*RF) for two different aspects, (LT*JS), (CS*BG), (NC*SS), (RR*NC), (SS*RF), (JS*CS), (BG*NC), and (SS*LT).

Set Exclusion Principles

All of the previously noted team similarities constitute forms of association depending on their qualitative criteria. Characters may be associated with a quality, or different teams may be associated with each other because they share a quality. This raises the question of how much association can coexist between sets and among elements in the same set. One might assume that there is no limit to how much, especially since we are dealing with fictional characters in made-up stories. Not even the sky's the limit when dealing with superheroes.

For example, consider two of the above-noted team similarities between three people: Reed Richards of the Fantastic Four has stretching powers like Rita Farr, Elasti-Girl of the Doom Patrol. Using their name initials, then (RR*RF) for the set category (stretching powers). If the set category is (team leader is brilliant scientist), then Richards is like Niles Caulder, the Chief of the Doom Patrol, so (RR*NC). However, no single character in the Doom Patrol is both stretching and a brilliant scientist like in the Fantastic Four, but there could have been if any writer had so chosen. Niles and Rita are associated in the same group, so we can say (NC*RF), but not based upon any shared powers. We cannot say (RR*NC*RF*RR) based upon either shared powers or team membership alone. We would have to be at a broad level category like (Earth humans) or (superheroes) to finally include all three in the same set.

While this illustrates a property of mythic algebra and thus symbolic processes, it does not necessarily lead to more exemplars of association.

Qualities Versus Exemplars

The natural question arises, since the Doom Patrol are so similar to the Fantastic Four, and the Doom Patrol are exemplars of association, are the Fantastic Four also such exemplars? The answer is no, which we can now demonstrate.

Can the Fantastic Four be fit into the same categories of association? Let us compare each team member to their Doom Patrol analog's type of association. While Ben is trapped in an orange body, he is not bound in it. His body is transformed into a rock-man. When Johnny yells "Flame on!" he is not unbinding but rather transforming his own body into a flame-man. Reed does not grow or shrink in size on an orderly scale of measure. His body has been transformed into a stretchable rubber-man, like the classic DC character Plastic Man. Sue's body has also been transformed to enable invisibility. We see that all four members of the team make use of the mythic algebra transform arrow \rightarrow . They have also been uniquely transformed, unlike Beast Boy's ability to transform into any animal.

The Fantastic Four and the Doom Patrol do share some associations, but the same ones that any teams share. As founders of their groups, Reed and The Chief both are collectors.

Any team should have romantic links, so Reed and Sue are married, as are Mento and Rita. Aside from these common traits, there are many more shared qualities than association types.

Moreover, there is a difference between the forms of shared qualities between the teams. As the TV Tropes article highlights, the essence of the Fantastic Four is their modeling the elements of earth, air, fire, and water. The Doom Patrol characters do not model these elements. Negative Man's energy is not fire. Elasti-Girl's only connection with water is her emerging from an African river upon her origin. She seldom is elastic, instead just growing or shrinking proportionately in size. Robotman is all metal, not made of rocks. The Chief does not move through the air invisibly. So while the two teams have similar qualities, they do not model the same things.

We have now seen that one team, the Fantastic Four, models classic elements while the other team, the Doom Patrol, exemplifies types of association. Yet both teams share qualities as they represent such different things. This is an example of teams being similar but not otherwise associated. If we want exemplars of association, we must look to the Doom Patrol!

Conclusion

This comparison of teams brings up another possible use for mythic algebra: as a legal tool for copyright cases or cases involving creators' rights. What if Marvel had decided to sue DC to stop the Doom Patrol, in the same way DC sued Fawcett to put Captain Marvel out of business? Mythic algebra notation can help clarify how much similarity exists versus the more important differing qualities. Or in a creator's rights case, the notation may show generic traits, such as a hero cycle, versus unique qualities of a character that might otherwise just be listed in a legal brief. So there are now three possible uses for mythic algebra: legal tool, guide for creators, or to enhance the appreciation of readers and scholars.

The Doom Patrol has received little academic interest, most of it focusing on Grant Morrison's tenure as a writer from 1989 to 1992 ([Shaviro 1997](#)). While this was a high point for the team's popularity and profundity, they have had loyal cult followings through all of their incarnations. Why were they canceled, and why have all subsequent relaunchings not lasted?

One critic notes that a strong appeal of the original team was that they were outsider freaks who were only tolerated by the public long enough to do a good deed. They retired to their brownstone building after missions and avoided public contact. This resembled the early X-Men milieu. When this story angle changed, sales could never sustain publication. Indeed, their linkage with Mento and Beast Boy, never official team members, is cited as part of what decreased their appeal ([Benson 2010](#)). Mento, Rita, and Gar provided a nuclear family and an outpost in the mundane world, not an interesting hideaway.

Yet something interesting about the Doom Patrol persisted, and new versions of the group were tried over the ensuing decades, each lasting a few brief years. To say that the team is interesting because of its unusual characters does not distinguish it from any other superhero group. So perhaps part of its special interest lies in the variety of associations it exemplifies.

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Two Favorite Covers

Thursday, September 5, 2019

Silver, Modern, Green, Woman: My Two Favorite Superhero Comic Book Covers

By Michael Griffin, MLS

Abstract

The silver age cover for X-Men #50 is compared to Botticelli's painting The Birth of Venus and the modern age cover for Harbinger #17. The contrast of subjects typifies the status of women's liberation in western society at those times, 1968 and 1993, or second and third wave feminism. In the first, a woman is coming into her power. In the second, a woman is supported by a camouflaged man.

Keywords: camouflage, feminism, Harbinger, Venus, X-Men

Superhero comic books have an 80-year history to draw upon to pick out one's favorite covers. I am not doing that; instead, I am reflecting upon the two covers which naturally stand out to me as my clear favorites. One of them is certainly among the most popular silver age covers of all: Jim Steranko's 1968 cover for [X-Men #50](#), hereinafter referred to as X50. The other is little noticed or remarked upon: Howard Simpson's 1993 cover for [Harbinger #17](#), which I will refer to as H17. While these two covers have many obvious differences, one can contemplate possible similarities and how each might embody the zeitgeist or spirit of its own age.

Steranko's X50 shows the debut of the character Polaris, mistress of magnetism.

It is a kind of birth of Venus, and does bear comparison to Botticelli's 1485 classic painting [The Birth of Venus](#). In a mirror-reversal of the painting's pose, a winged figure is still on the side opposite to the arm hanging down. Rather than covering her breast, Polaris is stretching out her hand to express power, perhaps channeling magnetism or just symbolizing her command of the situation. Venus and Polaris are both flanked by supporters, though the X50 cover teases that they may be fearful adversaries (they are not). X50 shows the birth of Polaris in a time of rising empowerment of women in America, called second wave feminism. Women's liberation had moved beyond getting the vote and was now raising consciousness about social position. Superhero comics responded somewhat in kind (Madrid 2016). For example, the story inside X50 is of a mild-mannered young woman kidnapped by followers of the supervillain Magneto and turned into Polaris. Her natural powers had lain dormant until Magneto's minions activated them. One may critique the story as not exactly feminist, yet the result is a newly empowered young woman who at story's end maintains her independence.



Image 1

X-Men #50 cover, Copyright © 1968 Marvel Comics.



Image 2
The Birth of Venus, 1485 (Google Art Project).

Let us now jump ahead in real time from 1968 to 1993. According to the Valiant Wikia, the H17 cover was drawn by Howard Simpson, inked by Bob Layton, and colored by Maria Beccari. It shows the young, single black female character Shatiqua carried in the arms of the character Camouflage. She looks possibly surprised, as if he has just scooped her up. Her own superpower is fast agility and reflexes, yet we don't know if she will resist or hang on to him in approval. The cover is thus an effective tease to entice us to see what will happen inside the story. It is only a tease, since this scene does not occur in the story, but it does symbolize what occurs. Shatiqua invites Simon, or Camouflage, to attend a house party with her. At the party, Simon beats up Shatiqua's domineering and abusive boyfriend, before leaving with agents of the Harbinger Foundation. Shatiqua and Simon are friends, and he protects her in a way.



Image 3

Harbinger #17 cover, Copyright © 1993 Valiant Comics.

A variety of further interpretations of this cover can fit the zeitgeists of its time and our present. The 1990s saw the rise of third wave feminism, broadening out to include issues of race and class, and superhero comics took this influence up to the present day (Cardo and Curtis 2018). Here we have an unremarked example, a woman of color supported by an invisible man, fitting the third-wave context of the post-women's lib years. In our current 21st century we have further gender issues. A Jungian reading sees the animus, the male aspect hidden inside the woman. Or a Jungian transgender reading sees the anima made flesh, the female aspect hidden inside the man replacing the fading man. If we don't look inside the story, there is no certain clue of Camouflage's gender, in fact, except for a lack of any hairstyle indicating short hair more common to men in 1993.

The flexible utility of this cover owes to its true nature, which belongs to an art tradition in western civilization only a century old: camouflage art (Forbes 2009). Perhaps the H17 artists Simpson and Layton intended no more than a contribution to the camouflage art tradition, but the colorist Maria Beccari made the dominant wall color green, which fits original camouflage based on nature. However, the green of nature is a symbol of natural power, and now a further connection to X50 arises. Polaris has naturally green hair besides a green costume, and as such resembles a kind of nature goddess, which is fitting since she commands magnetism, a force of nature. Her aura of power casts the

X-Men in a green light. Green is prominent on the H17 cover also, merely as the main color of the striped wallpaper. This green is in vertical panels and also designs running vertically along the wallpaper. And imagery of the wallpaper covers the character Camouflage as if it was lines of force channeled from nature. Since Camouflage is carrying the woman Shatiqua, it is as if she is supported by green lines of natural force, although she is obviously not in control of those forces like a nature goddess. She is not like Storm, the X-Men's black African nature goddess who first appeared in 1975 (Dalbeto & Oliveira 2015).

So we do have a tonal contrast between covers. X50 shows an empowered young woman with those around her taken aback. Polaris floats in the air, a vertical orientation position. H17 shows a young woman taken off of her own feet by power, in a horizontal orientation. The third wave seems harder to control than the second wave, if we read gender politics into these covers. Was it so in society? At least in superhero comics, there was a proliferation of superheroines, including the X-Men (Campochiaro 2016).

And where are they now? Polaris has maintained her popularity and continues to appear with the X-Men today. She is even one of the main characters in the live-actors TV show *The Gifted*, a spinoff of the Marvel Cinematic Universe X-Men on Fox TV. Shatiqua was a lesser character who only lasted six more issues after H17. Camouflage joined the Harbinger B-Squad and last appeared in 1995. My shy introverted nature is drawn to the Camouflage character, while my anima also seems OK with either woman, in X50 or H17. These images of beautiful young women, self-empowered or supported by a camouflaged man, call to me. Influenced by their times, such covers remain as powerful symbols, the waves of force the women channel matching their waves of feminism, spreading out across space and time to reach our present day.

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20-year recap wrapup

Tuesday, September 8, 2020

Reconstructing Mythic Algebra

By Michael Griffin

Abstract

This is the tenth in a series of papers on an algebra, derived from mythology, that can model symbolic processes. Previous papers used literary semantics, mythology, semiotics, philosophy and mathematics. The main features of the algebra are set-based elements and making association a new operation. While such a system can be reductive, it need not be. It may reconstruct into a more useful tool. Various implications for its foundations are considered.

6 Keywords:

algebra, association, mathematical modeling, numbers, reduction

1. Introduction

Mythic algebra began as a system to model mythology, then expanded into narration, thence to cover a host of mental processes using the operation of association (2003). Once the system was completed, new applications were made into semiotics and mathematics (2008). One may question just how far can a system go that is derived from mythology. A guiding assumption was that the mental processes that manifested as myths would also manifest as anything else, if only the underlying system was found.

The guiding principle was to use the features of basic algebra, looking for group principles and two distinct operations. The results became the following system represented in a formulaic lineup:

$(p, q, x, y, s, t), M, R, M/R, R/M, \rightarrow, =, \neq, \approx, \approx \neq, +, -, *, \div$

This lineup separates into levels as:

Sets (p, q, x, y, s, t) of elements people p and their actions q , things x and their actions y , space s and time t .

Functions $M, R, M/R, R/M, \rightarrow$, set states mythic M or real R that can map elements among them by $/$ or just alter elements or states by \rightarrow .

Relations $=, \neq, \approx, \approx \neq$ of equality, inequality, similarity, or dissimilarity.

Operations $+, -, *, \div$ of addition, subtraction, association or dissociation.

2. Discretion

Sets have discrete elements. By discrete, we mean separate, distinct, and also countable if we cared to. The meaning of countable will be explored in a later section, while here we look at the most basic definition of elements, their separate, distinct quality. Whether elements are in the same or different sets, they remain distinct from each other. A set of (A, A, A) has three A 's just as $(A), (A), (A)$ does or the listing A, A, A does.

Concrete reality clearly has things we perceive as distinct from each other: a rock is not a tree even if we have no names for them. Nature builds itself by using discrete elements, from atoms up to cells and beyond. Alfred North Whitehead (1967) in 1925 noted this fact of reality and examples of the advance in human thought once we recognize it:

The influence of atomicity was not limited to chemistry. The living cell is to biology what the electron and the proton are to physics. Apart from cells and from aggregates of cells there are no biological phenomena. The cell theory was introduced into biology contemporaneously with, and independently of, Dalton's atomic theory. The two theories are independent exemplifications of the same idea of 'atomism.' (99-100)

Our languages have modeled or mimicked this reality of discrete elements by using discrete words, regardless of the particular syntax or semantics. Labeling with words requires otherness, difference. Before Derrida wrote anything on deconstruction, the Zen philosopher Alan Watts (1959)

observed the troubles that arise when making discrete distinctions that may be arbitrary:

For the function of these nonsense terms is to draw our attention to the fact that logic and meaning, with its inherent duality, is a property of thought and language but not of the actual world. The nonverbal, concrete world contains no classes and no symbols which signify or mean anything other than themselves. Consequently it contains no duality. For duality arises only when we classify, only when we sort our experiences into mental boxes, since a box is no box without an inside and an outside. (80)

This “inherent duality” goes at least as far back as Plato and Aristotle, whose ideas were expressed as three Laws of Thought: 1. The law of identity [A is A]. 2. The law of contradiction [either A or not- A]. 3. The law of exclusion, or excluded middle [only A or not- A] (Law of thought, 2019).

Not only languages, but thought itself may become biased into useless or useful dichotomies. As the Taoists noted millennia ago (2007), once you make a discrete thing or quality you then have to have something else that is not that thing:

For is and is-not come together,
Hard and easy are complementary;
Long and short are relative;
High and low are comparative;
Pitch and sound make harmony;
Before and after are a sequence. (2)

Cut out windows and doors
In the house as you build;
But the use of the house
Will depend on the space
In the walls that is void.

So advantage is had
From whatever is there;

But usefulness rises
from whatever is not. (11)
(Blakney 60, 70)

Some basic dichotomies exist in mythic algebra, too. There is a static-dynamic principle to divide elements: static p, x, s or dynamic q, y, t . There is also a distinction of persons-things or neither, as p, q or x, y or s, t . This has been critiqued, for what defines a person whereas a sentient creature like a pet is a thing? If this criterion is a human body, then sentient minds don't count. One has to define the elements according to need.

Then the states of sets divide into the basic dichotomy of mythic M or real R , with mythic defined as not-real. Generalizing states into F or G still means that state G is not- F . Any number of distinct states can then be notated, all defined as not each other: $A, B, C, D, E, F, G, H, I, J, K, L, N, O, U, V, W, Z$, etc.

What criteria make them not equivalent? It depends on the context. For mythic stories, the M - R distinction was based on an $M(s, t)$ mythic spacetime which was not in our everyday world. For an F - G distinction it could simply be two separated sets, though seemingly equivalent elements: $F(a, b, c)$, $G(a, b, c)$. F is this one, G is that one.

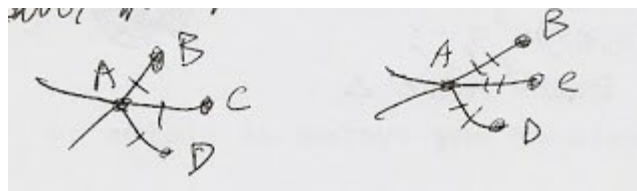
So we now have sets of six basic elements which can vary in their definitions. The state functions of these sets can also vary in definition, just as long as they differ from each other: M - R , F - G , etc. The elements and states are discrete because they differ in binary polarities. Elements p, x, s are similarly static, yet p, q are similarly of people but x, s are not. The utility of a people-things distinction fits realms in which people figure, such as the human mind or cultures. In realms of physical nature or pure mathematics, this may not matter.

These four different realms of use will be examined also in a later section. For now we can conclude that elements and states of sets are only defined by the quality of being discrete from each other. Another meaning of discrete is unconnected, which brings us to consider the next levels of mythic algebra.

3. Plus -- or Not

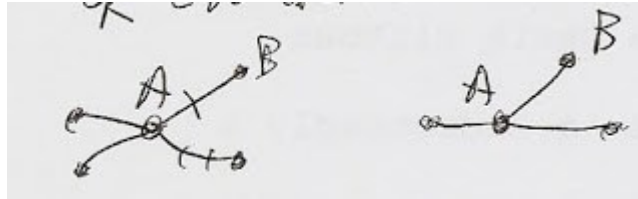
The basic operation that all mathematics is founded upon is addition. Once we have discrete units we combine them. Undoing addition is subtraction, extended addition is turned into the shortcut of multiplication, or its undoing is division. Mythic algebra does not consider multiplication-division operations, presuming they are implied by addition-subtraction. But what else may elements do besides combine by adding? They may add to stay distinct, such as: $A+B = A+B$, or they may add to transform, such as: $A+B \rightarrow C$, like $1+2=3$ as a new number.

These kinds of operations work well with discrete elements, but elements can also have a continuous connection apart from this, even if they maintain their discrete character. Such connections may not fit addition, but rather addition may fit into such broader connections. This continuous connection or linkage has been modeled as the $*$ operation of association. Some sketches can show the inadequacy of addition to fully convey all possible connections of discrete point-elements:



Points A,B,C,D are linked as $A*B$, $A*C$, $A*D$ and arbitrary measures of the paths may be taken as the magnitudes of points B,C,D. In the first example, $A+B+C+D = 2+2+2 = 6$, and in the second example $3+3+3 = 9$ yet in both examples the paths are the same lengths. Any scale of distance does not really matter to $A*B$, etc.

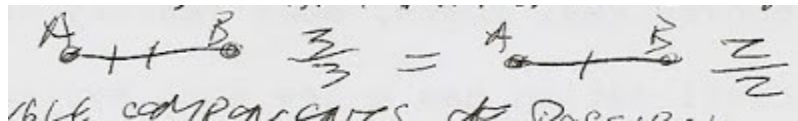
Or consider defining point A by its unequal links:



On the left, $A = 1+1+2+3 = 7$

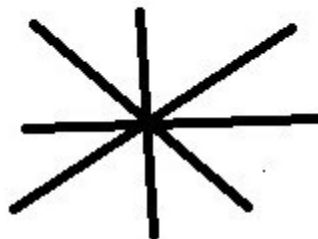
On the right, $A = 1+1+1 = 3$

Yet A and B are the same path and actual distance in both cases. Even B in these examples has magnitude 2 or just 1. Traditional number lines avoid this confusion of miscounts by keeping connections in a single dimension to measure, so any differences of scaling can be compared:



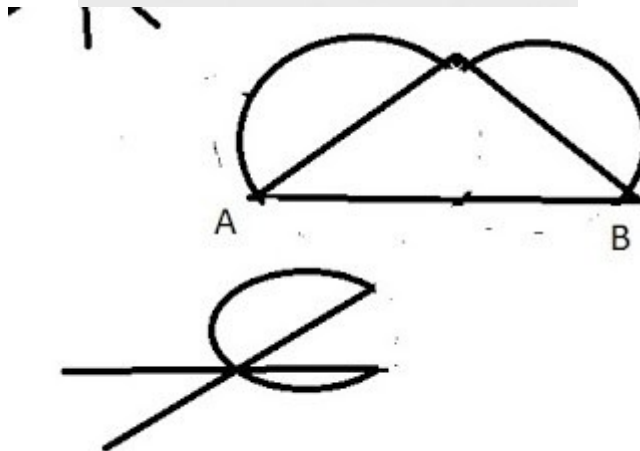
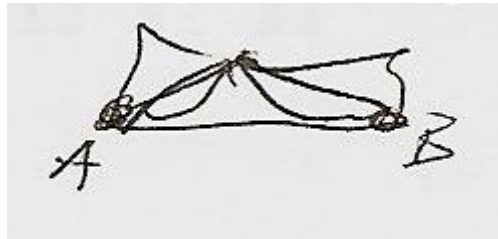
$A_+ _+ _B$ is $3/3$ which equals $A_+ _B$ or $2/2$

But such additive lines are single components of possibly endless continuous links:





whether on a two-dimensional page or any-dimensional space. As if out of *Flatland* (1884), a line connecting two points may only convey part of their total linkage:



A_____B

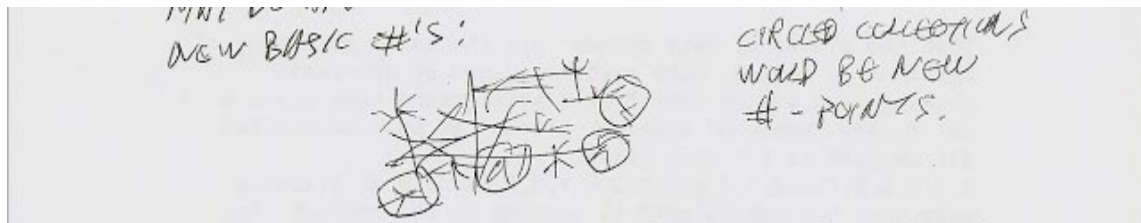
And if we only define the point's magnitude by measure along that single dimension, we miss all of the other magnitudes and path-connections notated by the asterisk symbol *.

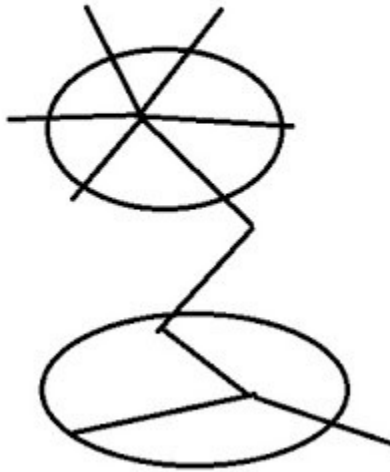
4. Levels

Besides the extra dimensions of connectivity, levels of organization may upscale or downsize in a fractal-like style of structure, maintaining mythic algebra at any level just as arithmetic does. The results of any use of mythic algebra may be subsumed into a new basic set element, its opposite elements then noted, and the usual mythic algebra operations and functions performed on these new elements.

By opposite, I mean pairs of static-dynamic elements. Even the space-time pair (s, t) can be a basic static-dynamic pair, if we define space as the field that allows differing elements to occur, and time as the force that allows change to occur, such as motion or mapping or any action.

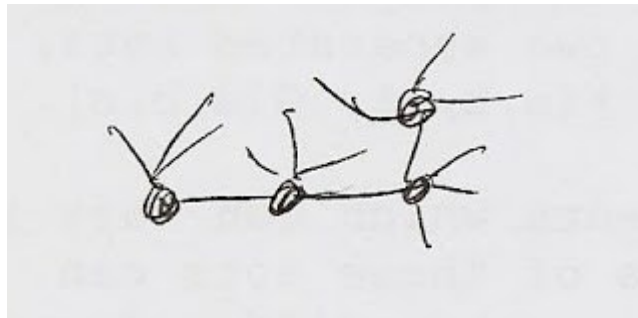
This makes a kind of reduction, but not reductive to the single operation of addition, as arithmetic does, and the edifice of mathematics built upon that. The properties of one level may not be predictable from the association links' principles at a different level, so no perfect reductionism exists. A structure can still be sketched to show how one group of associations may be arbitrarily defined as the next level's new basic elements:





Circled collections would be new element-points.

With the newer elements we may have only a sketch of:



And such a rescaling of perspective itself need not be on a uniform scale measurable by arithmetic.

However, natural science does model reality using levels of scaling of uniform numerical measure. We proceed from the units of ecology - whole organisms, to units of biology - body parts, to units of chemistry, to underlying

physics, to theoretical mathematical models of the basis of physics. Each level uses numerical addition to construct the next level, but even here we get new properties unexpected and not predictable from earlier levels.

Still, these new properties can usually be modeled with the same arithmetic-based mathematics that also is used for reduction between levels. The addition operation, using discrete numbers, does well to model nature. It is simply a starting fact without prior justification, such as is remarked upon mathematics by Wigner (1960).

If additive numbers are just one aspect of a larger mythic algebra using $*$ connections, then anything modeled by mathematics may have other real links missed by the traditional mathematics. It remains to prove such links and avoid the pitfalls of false analogies and wishful, magical thinking. And perhaps nature is so only because it is limited to arithmetical number-mathematics. But any emergent properties in nature may indicate the missing $*$ links of the association operation.

5. New Math

I have always viewed askance any system of claims to knowledge that can't be turned into a visual diagram or also into a structural symbolic system such as mathematics or logic, even though I consider all such systems merely provisional, pragmatic knowledge. Nonetheless, any long time I consider as talking a subject to death without getting to any deep understanding. This is undoubtedly a bias of my own brain, and an urge to simplify and unify. Since words to me are mere labels, I look for symbols that convey real force, more reality than labels. Our scientific civilization has a few such systems, mainly of mathematics, and perhaps this has been its appeal to me, a feeling that it is truer than mere word labels. Yet such truths seem so limited, that one can believe that a better, truer mathematics is possible. Perhaps this has been an urge upon me, too.

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